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ABSTRACT

A design for a completely revised professional section of the National Teacher Examinations Common Examinations is proposed. These exams must be designed to assess the central competency that a teacher must acquire and maintain: skill in professional problem-solving. Professional problems are not all soluble, and the solutions to many of those that are soluble are unknown to science. The essence of professional problem-solving is the routine application to educational problems of certain competencies: information-gathering skills, professional values, professional knowledge, decision-making skills, and performance skills. The items on the proposed examinations should be cast in the form of problems encountered by teachers in practice, which the candidate must solve. The measurement of individual competencies should be a secondary purpose of the examinations; its first purpose is to measure how much skill in professional problem-solving a teacher has. (BW)

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A PROFESSIONAL EXAMINATION FOR TEACHERS

A long-range plan for the future of the professional section of the NTE Common Examinations

by

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Prepared for the Policy Council of the National Teacher Examinations (NTE)

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TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

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September, 1981

An alert teacher educator was rummaging through a backpack stored in a cellar among various items apparently left there sometime in the future and not yet found useful in the present, when he came upon the letter quoted below. The letter bears no date, but a radio-active dating test yielded a negative value, which indicates that the letter has not been written yet. It is reproduced here because it gives a consumer's view of what the National Teacher Examinations (Common Examinations) will look like in the future.

Dear Clare:

Well, I took the National Teacher Examinations today - or at least, the part of them they call the "common examinations." As long as you are going to be taking them yourself before too long, you might be interested in what they are like, so let me tell you.

First of all, I would say taking them is more like teaching than taking any other test. The exam starts with a film showing a rather benign-looking old gent who says he is the principal of Rosewood Elementary School and wants you to pretend that you are a new teacher just hired to replace one leaving in mid-year. He takes you on a sort of a tour of the community and the school first and then shows you the class you are supposed to teach interacting with the teacher who is leaving. (Her husband got transferred across the country somewhere).

While the film is going on someone hands you an envelope which contains a lot of stuff about your class - such things as sheets showing test scores, sociograms, cumulative record holders. The "principal" describes what is there because he says you will need some of the information to do the test. He explains that the test will consist of a bundle of paperwork - of things you as a teacher might do during your prep period (if you have one) or take home to work on after dinner (if you don't), in another envelope called "a teacher's briefcase." He suggests that when you get your "briefcase" you should go through all of it first and decide what to do first, what is most important or urgent, because you may not have time to do it all in the 90 minutes you will have.

When you open your "briefcase" you find a set of large cards with a "problem" on each, together with a numbered set of suggested ways of dealing with each one. You have ten "points" to use on each problem. If you are quite sure that one of the suggestions is what you would do, you put all 10 points on that suggestion. If two look equally good, put 5 on each. You mark these judgments on one of those answer sheets they have on all ETS tests.

What I did was to work fast and do all the problems.

There was quite a variety, and on some I really did not feel sure what I ought to do, but on others I was pretty sure what I would do, whether it was right or not. Sometimes I had to look in a kid's folder, in others I had to use the lists of test scores or the sociogram. In some I wasn't sure what to use, and I am afraid I just guessed, since I only had an hour and a half.

There was one theme to grade, some test questions to revise, a note from an irate parent and a memo from the school psychologist, part of a lesson plan to finish, etc. It was quite a workout. I thought I did pretty well on most of the problems.

After lunch they gave us another answer sheet and then they showed us another movie. This one showed a series of little paragraphs describing things that might come up while you are teaching. After each paragraph came some suggestions as to what you might do, one after the other rather fast - I would say every few seconds. There was a space on the answer sheet where you marked a yes or no to indicate whether or not you would do that. You really didn't have time to think much before the next suggestion showed up. As the film said, it was just like teaching when you don't get time to think, either, but have to do something right away. This went on for about 45 minutes.

Then we had a break (which we needed!) After the break there was another film. This one showed actual brief episodes in a class and then asked you questions about what the teacher did or should have done. Again there were suggestions that you marked "yes" or "no." Believe me, you had to watch pretty close to see what was going on and to figure out what the kids were thinking or feeling from how they looked, whether something you saw was important enough to do anything about, and all that. Like I said, it was just like what you have to do when you are teaching.

By the end of the day I felt like I had been through it, I tell you! If a day of teaching is any worse, maybe you should think about nursing or an MBA while there is still time.

I suppose you would like to know what you ought to study so you could do well on this test. The only thing I can say is, everything! It seems to me one or another of those problems depended on knowing ed psych, stat, measurement, ed soc - as well as stuff like how important a mistake in spelling or arithmetic is, and like that. In some of those problems what you would do seemed more like a matter of opinion than of what you know; and some seemed to depend on having a thousand eyes or being able to figure out what a kid was feeling or thinking. You need to know something about standardized tests, and teaching strategies - that's why I say just about everything or anything you know might come in handy somewhere.

What kind of got me, Clare, was the way you never knew what you might need next. Most other tests I know have the

questions bunched: some geometry questions, some American history questions, some ed psych questions. Not this one.

They told us in the beginning that not all of these problems had "right" answers or "best" solutions. The principal said they were interested mostly in knowing how each of us would deal with these problems, so they could get some idea how we would teach if we got the job. I'm not sure he was on the level, you know what I mean? But to tell you the truth, in the afternoon especially I didn't have time to figure whether anything was the right thing to do, or the best: if it looked half way decent I marked "yes."

The problems in the morning were kind of tough, too - most everyone of them had more than one suggestion you could defend doing if you had to; I couldn't help wondering whether I should believe Skinner or Paiget or Bruner - or who? Lots of times I had a pretty strong feeling about what I would probably do, but I wasn't sure why.

If you ask me, the best way to prepare for this test is to prepare to be a teacher. Looks to me as if the same things are involved in both.

How did I do? I really don't know; but I did my best. If I can't pass this test I probably wouldn't want to be a teacher anyhow.

When are you going to get down to see us here? Angie has been looking kind of lonely lately....(the remainder of this letter is irrelevant to our concerns.)

THE IMAGE OF THE EXAMINATION

The impression that this teacher examination made on this student was almost exactly the impression a teacher examination ought to create. When the present examinations are revised, one important goal of the revision must be to produce a set of examinations with high face validity, a set of examinations that appears to demand of the candidate a performance which on the surface looks as much like the performance demanded of a teacher on the job as possible.

The Need for a Mystique of Teaching

The root problem that the teaching profession faces in its efforts to establish itself as a learned profession is the absence of a mystique. These efforts must succeed if the profession is to fulfill society's expectations of its practitioners. The job of today's teacher can only be performed by a competent professional. Until society - and the profession itself - accepts

this fact, the present discontent with teacher performance will persist and even grow. Acceptance of this fact depends on acceptance of the existence of a mystique, a body of knowledges, skills and values necessary to effective teaching and possessed only by trained professionals.

One visible evidence of the existence of this mystique should be the curriculum of the professional schools; another should be the examination which each aspiring teacher must pass in order to be admitted to the practice of the profession. Both the curriculum and the examination must involve professional knowledges, skills and value positions that are both unique and relevant to professional practice: and the fact that they involve them must be apparent to the lay public and to the practitioners themselves.

No such mystique exists today. Practicing teachers themselves perceive most of the undergraduate teacher education curriculum as irrelevant to what they do. The only part of undergraduate training that is generally regarded as valuable is practice teaching; and that is valued as an opportunity to gain experience, to learn by trial-and-error, rather than as the opportunity to relate didactic content to practice that it is intended to be. The experience that everyone values could just as well be provided by a school system or in a teacher center operated by the practitioners themselves as by an institution of higher education.

The didactic content of teacher education - especially the psychological, social and philosophical foundations - are seen as irrelevant to practice; as a consequence there is a powerful and thus far successful movement under way to remove teacher preparation from higher education entirely, and to train teachers as sub-professionals (like TV technicians) or skilled craftsmen (like plumbers) rather than as professionals[1], although a clear and compelling case has been presented for the view that the role a teacher is expected to perform today can only be performed by a professional;[2] and that only a teacher with professional training is competent to perform it.[3] None of this can be achieved

unless the profession convinces the public - and itself - that there is a body of content so extensive and complex that it can properly be taught only in an institution of higher education, a body of content the mastery of which is necessary to successful practice of the teaching profession.

The Importance of Face Validity

So long as this content is invisible to the teachers themselves; so long as they continue to operate as "individualistic entrepeneurs" rather than as implementers of the "best practice" of their profession(4), the trend to de-professionalize teaching cannot be reversed. If it is not reversed soon, it will become irreversible; and teachers will continue a vain effort to function as skilled craftsmen in a context which demands the services of skilled professionals.

The only way to arrest this movement is to change the image of the profession, particularly as it is perceived by its own members. This can only be achieved by making rapid and widespread changes in the teacher education programs of the nation. But how can such changes be brought about in several hundred autonomous facilities made up of even more autonomous professors with a strong vested interest in the status quo?

The only practical possibility is by changing the examinations that each graduate must pass before he is allowed to practice the profession. Most of the fifty states are under considerable public pressure to do just what needs to be done - to adopt a certification examination that will exclude incompetent candidates and admit only competent ones. But the first requirement that such a test must fulfill is that it possess face validity - that it look valid. It is true that, once adopted, such an examination will not last long unless it also has some other kind of validity, unless its use does result in the admission to practive of fewer incompetent teachers than present procedures admit.

Thus the key to survival lies in the prompt production of an examination which not only <u>is</u> valid, but <u>looks</u> valid as well.

The author of our letter clearly perceived the examinations she took as different from any examination one might take for some other purpose, which is at least a necessary condition for face validity. These examinations did not require the candidate to recognize facts, principles, or any other form of knowledge as other tests such at the GRE, LSAT, etc., do. These examinations required the candidate to make decisions about problems (large and small) of the same types that a teacher must make many times a day. It required them to do so under conditions that simulated as closely as possible (in the conditions of an assembled examination) the conditions in which teachers make them.

The problems were <u>not</u> organized according to the subject matter involved - there were no subtests dealing with psychology, methods of teaching, tests and measurements, etc. The problems were organized (or disorganized) in much the way they are in the practice of teaching. The ability to access any bit of relevant knowledge (regardless of when or how it has been acquired) at the moment when it is needed is at least as important (particularly in interactive teaching) as possessing the knowledge. Knowledge not accessible when it is needed is useless to the teacher in the classroom.

This was obvious even to the candidate, and made her perceive the examination as very different from other examinations, including present-day teacher examinations, in all of which the essential ability measured is the ability to recognize knowledge, to discriminate fact from fiction in a context in which one always knows what kind of knowledge is needed. One never needs knowledge of arithmetic while taking a literature test - or knowledge of literature while taking an arithmetic test. All areas of knowledge save one can safely be left on the shelf when taking a conventional examination.

Teachers and laymen alike sense that this ability is no more relevant to success as a teacher than it is to success in any of a hundred other occupations; and that teacher education does not develop this ability any more effectively than education for some entirely different occupation. At present, we have a

teacher examination which differs from other achievement examinations only in content, and those differences are minor, and are not perceived as related to success in teaching.

Thus the examination does not even look valid either to the teacher education student or the non-teacher-education student. Moveover a bright liberal arts graduate seems able to do as well on the examination as the average graduate of a teacher education program, if not better.

The empirical literature contains so many unsuccessful attempts to find a correlation between Weighted Common Examination Total scores on the NTE and some measure of teacher effectiveness that it seems clear that the predictive validity of these tests is no greater than their face validity.(5)

The version of the examinations described in the letter may, for all we know, have no predictive validity either. But it seems quite probably that graduates of teacher education programs will do better on it than graduates of other college programs, which is prima facie evidence of content validity at least. But because it does have face validity it can buy needed time for teacher educators to get their house in order and make one more attempt to produce the professional teachers society needs so desperately.

THE RATIONALE FOR THE NEW EXAMINATIONS

Although the face validity of the new examinations has been emphasized rather heavily in the foregoing remarks, the examinations are designed mainly to provide valid measures of teacher competence. More specifically, they are designed to assess the central competency that a teacher (or a member of any other learned profession) must acquire and maintain. This competency is skill in professional problem solving.

The essential difference between a learned profession and any lesser occupation lies in the approach professionals use in attacking professional problems, an approach which will be referred to as professional problem-solving. This approach or method has been evolved because one characteristic of professional

problems that not all of them are soluble, and another is that the solutions to many of those that are soluble are unknown to science. But the practitioner of a profession is not allowed to refuse to deal with such problems: the physician is expected to treat the incurable as well as those who can be cured; the lawyer is expected to fight the hopeless case as hard as the one that can be won; the teacher is expected to teach the slowest learner as well as the fastest.

In order to deal with the full range of professional problems, many of which are completely novel and many of which have no known solution, the professional must use a general process rather than a set of specific techniques (or bag of tricks). A TV technician (who is not a professional in this sense) may refuse to work on a TV set that suffers from a malfunction that he cannot correct; he may even recommend that it be scrapped. The technician sells results: if he does solve a problem he will not be paid for his services. The professional sells a service; he is paid for performing that service even if he fails to solve the problem The doctor's bill must be paid even if the patient dies; the lawyer, even if he loses the case.

It is clear that today's teacher - and tomorrow's - must be a professional in this sense. Society expects the teacher to provide a service to all who need it regardless of aptitude or attitude. The teacher faces many problems which the science of pedagogy has yet to solve, and some (perhaps) which it will never solve.

Professional Problem Solving

The service that the teacher provides reduces to the application of the method of professional problem solving to educational problems. The essence of this method, briefly described, involves the routine application to educational problems of certain competencies, of professional knowledges, skills, and value positions, acquired through professional training. A competent practitioner must not only possess these knowledges, skills, and values; s/he must also use

them habitually, as a matter of course. These competencies fall into five categories, including: Information-Gathering Skills that enable the professional to grasp a situation more clearly than a layman does; Professional Values that provide a clearer understanding of the way things ought to be than the layman possesses (It is a discrepancy between the two that is recognized or "diagnosed" as a problem); Professional Knowledge that informs the practitioner about ways of dealing with the problem; and Decision-Making Skills which indicate what should be done in the problem in hand. Application of all of these competencies results in what in medicine is called a prescription. Finally, under present conditions, the teacher must be able to use professional performance skills because (unlike physicians) teachers usually implement their own prescriptions.

Practitioners who cannot (or do not) use all five types of competencies in dealing with professional problems, do not function as professionals. Teachers who do not possess or cannot use all five types of competencies are not competent to practice their profession. As society's expectation of the teacher continues to grow, it will become increasingly difficult for the teacher who is not a competent professional to fulfill these expectations.

A Professional Teacher Examination.

This last assertion has not, of course, been verified empirically, nor can it be, because no instrument yet exists which discriminates teachers who possess these competencies and can use them from ones who lack them. To make these discriminations is what the new teacher examination must do if it is to advance the practice of the profession of teaching. This is what I mean when I say that the new examination must measure skill in professional problem solving.

The items on the examination described earlier are all cast in the form of problems encountered by teachers in practice which the candidate must solve. This is necessary, first to make candidates - and those who train them - aware that problem-solving is the central task of teaching, and secondly to make

them realize that the professional knowledges, values and skills they acquire in training are highly relevant to the successful performance of that central task. In short, the idea is to make them see teachers as competent professional problem-solvers, and make them expect teacher education to make them competent professional probjem solvers.

Some of the items are designed to tap the candidate's knowledge: in order to score well on such an item the candidate must possess relevant knowledge, s/he must be able to relate it to the problem situation, and s/he must also be able to call it out from memory on demand.

Other items are designed not to depend on knowledge for their solution but on value positions or on skill in extracting relevant information about a situation from the data available. Some may call for two or more of these types of competence. Still it should be possible to score a candidate's performance diagnostically so that if a candidate performs poorly s/he can be informed whether the failure resulted from lack of knowledge, of information gathering skills, of a grasp of professional values, or whatever.

I have assumed that the general literacy of the candidate will have been established on a separate battery of conventional achievement tests in the basic areas of subject-matter content with which all teachers are expected to be familiar, and that it will have been established before the candidate was admitted to professional training in the first place. The knowledge measured in the professional teacher examination under discussion (which is taken at the end of training) is seen as professional knowledge - knowledge acquired in professional courses, knowledge not generally possessed by well educated persons trained in other programs.

Organization of the Professional Teacher Examinations.

Much of this content is already contained in the Common Examinations of the National Teacher Examinations; more will probably be contained in the revised examinations shortly to be introduced. But these examinations are

designed to measure the knowledge by means of conventional multiple-choice items. These examinations reflect a view of knowledge as systematic, as organized into well-defined areas such as psychology, sociology, and anthropology. Within these areas knowledge tends to be organized into still finer subdivisions of content and also according to different theories or systems. Such a test therefore consists of subtests corresponding to divisions of knowledge.

I like to characterize this scheme as one in which test questions are arranged according to the answers expected. In a recent "Peanuts" cartoon the teacher asks "What is nine times seven?" and Patty answers "Benjamin Franklin!" Patty has not yet grasped the point (well known to college students) that in the arithmetic lesson one can safely forget all one knows about history, literature, science - everything but arithmetic; and, moreover, that when the lesson has to do with multiplication one can forget about long division, decimal fractions, and all that. The candidate taking a conventional achievement test must therefore adopt a mental set about as far from that a teacher must take in the practice of teaching as it is possible to get. In teaching - as in most real-life settings, only more so - the teacher never knows what bit of knowledge among the many any teacher has will be needed next. Despite the fact that a lesson in progress may have to do with multiplication, the next decision the teacher makes may call for a knowledge of psychology, pedagogy, sociology - almost anything in the teacher's repertory (or outside it, for that matter).

I have no data about what proportion of the teacher's knowledge is accessible under such circumstances - I suspect that this varies widely from one individual to another - nor do I know how much it correlates with the amount of knowledge the teacher possesses. Nor do I need to know. What is relevant to success in teaching must be the knowledge available to the teacher when it is needed; so this is the knowledge the professional teacher examination should measure. Not what the teacher knows and can produce when taking an achievement test, but what the teacher knows and can bring to bear on a problem encountered in the practice of

teaching.

Presenting teacher examination items in the form of teaching problems to be dealt with rather than of questions to be answered, requiring the teacher to respond in terms of what s/he would do rather than of what s/he knows, seems to me an important prerequisite for measuring accessible knowledge. And, incidentally, accessible skills and values as well.

And it also seems important if not necessary that the problems or items on the test not be arranged into subtests according to the answers desired (as in a conventional test) but rather in the way that they might arise in practice. That is why the new examinations separate "pre-active" teaching problems from "interactive" ones.(6) If separate subscores on various areas of competence are needed, keys can be constructed to score relevant items wherever they are (as is done, for example, on the Minnesota Multiphase Personality Inventory). Subtest scores can be obtained on various areas of knowledge as well as for different information-gathering skills (ability to interpret test scores, to read sociograms, to detect signs of lagging attention, etc.), or value positions (expectations for pupils of varying ethnic backgrounds or abilities, concepts of permissible behavior or use of language, etc.) if desired.

The Central Competency

But the measurement of such competencies is a secondary purpose of the examination; its first purpose is to measure how much of the central professional competency - skill in professional problem solving - a teacher has. Not which knowledges, values, or information-gathering skills s/he possesses but whether s/he is able to use the ones s/he has. The candidate who possesses this central skill is the one who uses knowledge, value positions, and information-gathering in attacking teaching problems. Which knowledges, values, or skills the candidate uses is not really relevant to this question (so long as the ones used are ones that have been or could be acquired in professional training).

As Lortie found in his sociological study of teachers, few present-day

teachers consciously use this approach to problem-solving. Most practicing teachers base their decisions on their own personal experiences, unlike other professionals - physicians, for example - who at least claim to follow what is called "best practice." Competent physicians act as though there exists a body of knowledge about the practice of medicine common to all practitioners (based mainly on research), which indicates the best course of action in most situations, and implement this knowledge in their decisions. Teachers do not share this attitude; teachers generally believe (and have been encouraged by education faculties to believe) that different methods work best for different teachers, so that each teacher must seek idiosyncratic solutions to teaching problems rather than ones common to all practitioners.

This probably lowers the general level of teacher effectiveness somewhat; but what may be more serious is the resistance it causes to innovations. Teachers as a group tend not to turn to research or theory for better ways to teach but instead have a firmly entrenched belief that both are irrelevant. At best they may read one of the slick magazines in which teachers exchange tricks they have used which others may wish to try out. If research were suddenly to discover the secret of effective teaching, that discovery would have little impact on practice because few teachers would hear of it, and fewer still would believe it.

In this respect, the teaching profession is just about where medicine was some eighty years ago, according to Dr. Lewis Thomas.[7] The dramatic advances in medical practice since then were possible, according to his account, because the medical profession learned to accept sound theory and research as the best source of better practice, and to incorporate the research findings into practice rather promptly. Only when practitioners habitually use professional knowledge in solving professional problems can advances in professional knowledge produce advances in professional practice. One purpose of the new teacher examination, as we have noted, is to convince teachers of the relevance of professional knowledge skills and values and to encourage them to use them in practice.

What the new teacher examination is designed to measure is whether a candidate has acquired this habit or not. Whether the knowledge the candidate uses is the best, or is correct, is less important than the fact that he uses it. If all teachers used professional knowledge (however inadequate) to solve professional problems as a matter of course, then we could get to work on improving the quality of that knowledge, and any improvements we made in knowledge would promptly improve practice.

Scoring the Professional Teacher Examinations

Every item on the new examination, as we have noted, presents the candidate with a problem to solve, a decision to make, and several alternative decisions to choose from. Some of these decisions will reflect knowledge currently taught in professional education programs (or skills or values). Some will not, but will reflect intuitively attractive options that have no professional basis whatever. A candidate's score will be based on how many more of the former than of the latter the candidate selects.

In the long run, and over a considerable variety of problem situations and alternative solutions, the candidate who selects more "professional" solutions and fewer "non-professional" ones will be credited as more skilled in professional problem-solving than one who selects fewer of the former and more of the latter.

At a recent "Invisible College" meeting Lee Shulman suggested (perhaps facetiously) that "wrong answer" items might be more useful on a teacher examination than the "right answer" items so universally used today. In a sense, this is what is being suggested here. Instead of one "best" or "right" answer and three of four wrong ones, each item on the new examination will have at least one "wrong" answer, and (usually) two or more "right" answers.

Among the "right" or acceptable answers, among those, for example, that reflect the use of knowledge, there could be ones reflecting different theoretical points of view, different models of teaching, or different theories of learning. It should be possible to develop one or more subscores (based on which "right"

answers a candidate chose and ignoring "wrong" answers) that would identify which point of view a candidate held. These scores would be independent of the principal score, the score on skill in professional problem solving.

It should not be necessary to emphasize the point that some "professional" options might be chosen by "intuitive" candidates - and vice versa. No test is perfectly reliable. It is therefore necessary to include a substantial number and variety of items and to ensure that the "correct" alternatives sample a wide range of knowledges and that the "incorrect" ones also offer a variety of choices.

CONCLUDING COMMENTS

The alert reader will have noticed that what I have been proposing is just about as radical a reform in the professional sections of the NTE Commons as could be imagined. The new professional examinations are designed to measure a teacher characteristic entirely different from what the present examinations purport to measure; they propose to use very different item formats; and they propose to present those items to candidates in an entirely different way than is presently used. In effect, I seem to be suggesting that the old professional examinations be scrapped.

I have not just suggested - I have taken for granted-that the general or non-professional examinations will be detached from the professional subtests entirely, and administered to students <u>before</u> they are admitted to a teacher education program in the first place. The new examinations could hardly look more different from the present ones than they do.

Perhaps the only similarity between new and old is that both examinations are group tests, are tests for which candidates are brought together on specified dates and tested en masse. There are great practical advantages in this modus operandi. The assessment center concept is very attractive, but too difficult to implement in an ongoing program that involves such large numbers of subjects each year.

The rather radical surgery I have proposed seems justified by the history of the NTE. Quite simply, no important changes have been made in the examinations during its forty-year history. Minor changes in content - including those proposed for 1982 - cannot change anything about the test except perhaps its face validity. I have made it quite clear that I regard face validity as important; but neither the 1982 version nor the 1972 version - any more than the 1942 version - has enough of it to impress practicing teachers. The tests may look valid to the public, to legislators, to the courts; but teachers remain unconvinced.

That the present examinations lack validity as measures of teacher effectiveness has been demonstrated over and over in the last 40 years; and in the foregoing discussion I have argued that it lacks content validity as well. There is no question that something needs to be done, and it is high time to start.

The new examinations are so different from the old for the obvious reason that when what you have doesn't work you try something different. What I have proposed is not just different, however; it differs in directions which are likely to work.

In the simplest possible terms, success in teaching (or any other field) depends on two things: knowing what to do, and being able to do it. The new teacher examinations are designed to measure the first of these - the teacher's ability to decide what to do; and they are designed to do this by assessing how a candidate reaches a decision rather than what kind of a decision he reaches. They do so by simulating the teaching situation as closely as possible in a test administered by large groups; this is why the items are presented on film rather than in a printed booklet.

On the present examination, which seeks to measure knowledge, best-answer items may be appropriate; but in the new one, which seeks to measure problem-solving skills, they clearly are not appropriate. This is why the new

examinations use a different item format than the old.

Whatever the future teacher examinations are like, whatever changes are planned, I certainly hope that they will differ radically from the old ones. If we know anything about evaluating teachers for sure, we know that tests of knowledge do not work. So let's try something else.

NOTES

1. See Drummond, W. H. and Andrews, T. E., "The Influence of federal and state governments on teacher education." Phi Delta Kappan, 62: 97-100. October, 1980; also Smith, B. O., "Pedagogical education:how about reform?" in the same issue.

2. The case is made most convincingly in Howsam, R. B., Corrigan, D. C., Denemark, G. W. and Nash, R. J. Educating a Profession. Washington, D.C. American Association of Colleges for Teacher Education, 1976.

3. See Smith, B.O. A Design for a School of Pedagogy. Washington, D.C. U.S. Department of Education, 1980.

4. Lortie, D.C. Schoolteacher. Chicago, University of Chicago Press, 1975. Also noted in Denemark, G.W. "The Case for extended programs of initial teacher education." A paper presented to the Forum of Education Organization Leaders, Arlington, VA., September 7, 1979 (mimeo).

5. See Quirk, T. J., Witten, B. J., and Weinberg, S. F. "Review of studies of the concurrent and predictive validity of the National Teacher Examinations." Review of Educational Research, 43: 89-111, 1973

6. Jackson, P. W. The Way Teaching Is. Washington, D.C. Association for Supervision and Curriculum Development, 1966.

APPENDIX

To give the reader a better idea of the kind of item I am talking about, I am appending the following excerpt from a forthcoming monograph tentatively titled The Role of Teacher Educators in Teacher Competency Assessment. This material is not to be reproduced, quoted, or cited without the permission of the author.

. . .If the public is correct in asserting that too many incompetent teachers are practicing today, the blame rests squarely on the teacher education institutions. The teacher education institution has two important functions to perform: one is the training function and the other is the gatekeeping function. It is difficult to argue whether either is more important than the other; but there is no question which recieves more emphasis, to which more time and effort is devoted.

If we decide to put more emphasis on teacher evaluation, on the gatekeeping function, the question arises: how? Do we know enough about competency assessment so that if enough resources were committed to the task it could be accomplished?

My answer to this question will occupy the rest of these pages, which will present an analysis of the problem, which, though incomplete, will suffice to indicate that we do have the knowledges and skills, the technical resources to do the job. Whether or not we are willing to reallocate the limited resources we have is what will determine whether we survive or not. If indeed the professional education institutions of this country accept the two responsibilities perhaps they should reallocate their resources between them. Right now I would estimate that no more than 5% of available resources are committed to the second function.

In the analysis to follow I will attempt to show that the technical resources do exist by assessing the present practice we use in competency assessment, and try to get an idea of what would it take to bring everyday practice in line with the state of the art.

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<u>An Alternative to the Paper-and-Pencil Test</u>. The experience of taking a multiple-choice test is very different from the experience of interacting with a class. It may be possible to design a test which elicits the same knowledges that interactive teaching demands; but there the resemblance ends. As we have seen, a student can do very well on a test of knowledge competencies by using an ability which is no help at all when s/he is engaged in interactive teaching.

For this reason, we have sought for some other way of measuring teacher knowledge, and have had some success with the one I propose to describe now.

The student who takes this test is provided with an answer sheet very similar to those that accompany multiple-choice tests, with spaces to mark alternative responses to 125 items. The items to which s/he is to respond, however, are not presented in a booklet but in the form of 35mm slides and a cassette tape. If the test is being administered to a group of students, the slides are projected on a screen from a carousel projector, which is synchronized with a cassette player. If it is being administered to a single student, a slide-tape viewer is used which also synchronizes the slides to the cassette.

Each slide presents a brief verbal description of a problem situation that a teacher might encounter, which is simultaneously heard from the tape. After the description has been read through, it remains visible while a series of possible courses of action are presented, one by one, on tape only. The student must decide whether each suggested action is appropriate - is one s/he might follow in that situation - or inappropriate - that is, are s/he would not follow. Other options are either to mark "?" or not to respond at all.

The series of alternatives is presented one at a time in rather rapid succession - at intervals of from three to five seconds. None are repeated; each one must be judged by itself. All, some, or none of the alternatives may be either appropriate or inappropriate ways of responding to the problem. A few seconds after the presentation of the last alternative, a new slide appears with a new problem.

The first problem presented (a sample) reads as follows:

> The principal unexpectedly appears at your door just as you have begun a class discussion, says to go on with whatever you are doing, and seats himself in the back of the room.
>
> What might you do next?

The first alternative is:

1. Try to do as he says and continue as though he were not there.

The best way for a student to respond to each alternative, we suggest in the instructions, is on the basis of how s/he would actually behave in that situation. There really is not enough time to follow any other strategy before the next alternative appears:

2. Invite him to leave.

And before the student has enough time to give this second possibility much thought, the third appears; and so on.

After the last alternative to this sample problem, a slide appears that reassures the student that if there was not enough time to think, then the tape is working as it should, because that is the way teaching is. Teaching involves mainly decisions based on insufficient information that must be made too quickly to permit adequate thought - just like those in the test.

The first of thirty problems is then presented. The series of problems follows a kind of sequence that begins when the teacher takes over a class for the first time and continues with a series of problems that come up during an arithmetic lesson, a social studies lesson, etc. After about 45 minutes the student will have been confronted with 125 alternatives to evaluate.

The first instrument of this type that we constructed was designed to assess what teachers had learned from three different in-service training packages. Rather than construct a separate test for each, we used the same one for all three. To confront a teacher with problems related to one training unit at a time would be unrealistic indeed; what we tried to do was to present a set of problems that seemed typical of a teacher's day. Among them were problems related to each of the three training units - as well as to others the teachers may or may not have studied. Among the alternative responses to a problem we tried to include at least one which was either correct or incorrect according to one of

the training packages. It was from the teacher's response to these alternatives that we derived the teacher's scores. Many of the choices the teacher made were not scored at all. Some of them were unscorable - that is, we ourselves had no basis for deciding whether the suggested action would be appropriate or not.

That is how classroom life is: not all of the problems that come up have known solutions; not all of the choices a teacher makes can be definitely scored as correct or incorrect. The training packages the teachers had studied were highly prescriptive; they made definite recommendations about how a teacher should respond in certain situations. Such situations were included in the test, and the prescribed responses were scored as appropriate in those cases, so that a high score on the key for a package would indicate that a teacher had assimilated the knowledge that package was designed to impart; and a low score would indicate that s/he had not assimilated it.

Although their main objective was to communicate knowledge related to research or theory, the packages also advocated certain value positions, took stands on what teachers ought to do. We found that we could measure these objectives in the same way that we measured knowledges, by presenting problems and alternatives that involved values rather than knowledge. In other words, our test samples the decisions students would make when confronted with tasks whose performance required competencies very similar to the knowledges and value positions involved in interactive decision-making. The test was not designed to measure either perceptual competencies or implementation skills, nor was it designed to assess directly the ability to synthesize all of these that we call decision-making skill. The decisions it required the student to make <u>looked</u> like interactive decisions, but the choices offered were so narrow, and so directly related to knowledges and values, that we believed that no decision-making skill was required for successful performance.

This type of exercise is highly practicable; it is not much more costly or difficult to construct and administer than a paper-and-pencil test; it yields an

objective record which can be scored like any other answer sheet. Yet it has much greater face validity than any multiple-choice test. Practicing teachers who take the test react positively - they perceive it as both fair and relevant. We like to think that it helps preservice students see the connection between knowledge and practice better than a multiple-choice test would.

I have no data to support the assertion that this is a valid and efficient way to measure knowledge and values relevant to interactive teaching, but I am inclined to bet that it is. It must be more valid than either the attitude inventory or the multiple-choice test which it replaces.

A Note on Assessing Professional Values. In a democratic society, the individual's right to her/his own values and attitudes is a fundamental human right, and one that s/he does not relinquish by seeking admission to a profession, even though the adoption of a set of professional values is seen as part of the process of becoming a competent practitioner. This is defensible only to the extent that certain value positions are necessary to the achievement of solutions to professional problems that are acceptable to the profession. A candidate who cannot or will not take these positions is an incompetent problem solver in the same sense as one who cannot master the knowledges and skills necessary to the achievement of acceptable solutions to professional problems.

I suggest that assessment of values in the context of problem situations similar to, and intermingled with, situations used to assess knowledge is preferable to the use of questionnaires because the pressure to dissimulate does not seem quite as strong; and because the relationship of values to teaching practice is more apparent.

Assessing Skills and Abilities

The relationship between professional skill and effectiveness seems intuitively to be much more direct than the relationship between professional knowledge and effectiveness; knowing what ought to be done is certainly very different from being able to do it. Fewer teachers fail because they are ignorant than because

they cannot apply what they know to the problems they encounter in their teaching.

The definition of skill implied here is the one we shall use: the ability to use knowledge in the solution of problems. Professional skill, then, is the ability to use professional knowledge in the solution of professional problems.

The domain of professional skills that a teacher would find useful is as vast as the domain of professional problems that s/he may expect to encounter in professional practice. It is so large that the only way in which we can profitably discuss strategies for assessing professional skill is in ter s of types or categories that correspond to the optimal strategies for assessing them.

Jackson has made a most useful distinction between what he calls interactive and preactive teaching skills.[15] Interactive skills are the ones that a teacher uses while interacting with pupils. Preactive skills are those the teacher uses when s/he plans, evaluates, or is otherwise engaged in teaching activities while no pupils are physically present. Skill in the actual conduct of class discussion is, of course, an interactive skill; skill in defining objectives appropriate to the status of a class and the goals of the school is a preactive skill. As Jackson points out, the two kinds of skill involve very different abilities: Preactive teaching is much more deliberate, thoughtful and less subject to time pressure than interactive teaching, which calls for prompt, almost intuitive responses with no time for deliberation. Procedures for assessing the two kinds of competence will define quite different kinds of tasks or problems to be performed.

An analysis of the professional problem-solving process suggests that different kinds of skills are involved at different stages in the process. Before a professional can apply knowledge to the solution of a problem, s/he must be able to perceive the elements in the situation that are relevant to the definition of the problem. The professional problem solver must also be able to decide what needs to be done in order to solve the problem at hand. And, finally s/he must be able to implement the solution.

Thus we will discuss skill assessment in terms of perceptual skills,

decision-making skills, and implementation skills. In examining the problems peculiar to each type of skill we will confront most of the problems involved in assessing teacher skills and abilities.

Assessing preactive teaching skills. Since preactive teaching does not involve live pupils, but is done by the manipulation of things like test papers, curriculum bulletins, etc., it is relatively simple to construct tasks or problems that simulate those encountered in preactive teaching. Some form of the "in-basket" test is indicated.[16]

For readers not familiar with this particular assessment device, a brief description may be in order. A student taking the test would receive a packet of materials simulating the content of a teacher's "in-basket" - or more appropriately, perhaps, the contents of the brief case the teacher takes home to work on during the evening. The contents of the teacher's brief case might include papers or compositions to grade, letters or memoranda that need replies, recommendations from the school psychologist to be acted on, and so on. The teacher may be required to construct a lesson plan, to make up a test, etc.

A single problem may involve tasks that call for the demonstration of perceptual, performance, and decision-making skills (although it is particularly adapted to the last of the three). The ability to interpret standardized test scores, for example, is a perceptual skill that can be assessed in this way. The ability to write test items would be a performance skill, also assessable in this way. The procedure is flexible enough so that each type of skill may be isolated or it may be tested in combination with others.

The in-basket technique is probably best adapted to use as part of the "terminal" assessment made of a student when he becomes a candidate for graduation and certification. For assessments made during training, assessments of mastery, let us say, of a skill that is prerequisite to entering another course or module, this approach is too cumbersome - not only to construct but to administer.

Because (as has been noted) these skills involve symbol manipulation rather

than interaction with pupils, they may be relatively accessible to assessment with specially constructed paper-and-pencil tests. The problem of controlling for general ability discussed in connection with knowledge assessment needs to be dealt with. The format used for another purpose by Sorenson looks promising.[17]

The Assessment of Interactive Skills. The need for practicable solutions to the assessment problems in this area is perhaps greater than that in any other area of competence. Lack of interactive skill accounts for most failures of teachers, as well as a large share of the damage that incompetent teaching does to the educational enterprise. A lack of objective procedure for diagnosing deficiencies of this kind may be the main reason why we cannot eradicate them early in the teacher's preservice training. Too many students pass all of their courses with flying colors only to discover in their first student teaching experience that they lack critically important interactive teaching skills they were supposed to have acquired in earlier courses; and too many graduate without acquiring them, too.

The ability to measure a skill accurately and often is a prerequisite to developing the skill in students. The range of individual differences in the responses of students to training is so great that it is not safe to assume that any student has mastered the competence until his skill has been reliably assessed and found to have reached a level defined as mastery. In addition to being objective, reliable, and valid, then, the assessment procedure must also reach a level of practicability well above what present techniques achieve.

Just about the only procedures we seem to have for assessing teacher skills are based on tasks defined in ways that require the use of pupils (or peers playing the roles of pupils) in some variation on microteaching. All such techniques are expensive, cumbersome, and therefore not very practicable. The logistics involved prevent most of us from using microteaching very often. As a result, training in these critical competencies must proceed largely in the dark, without the frequent, detailed, diagnostic feedback that is so essential to effective

training. The main reason why so many students reach the final stage in their training, student teaching, so ill-prepared is because not enough assessments of their interactive skills have been made to detect deficiencies in the earlier stages.

The strategy I am going to propose for improving this situation depends in part on the separation of the three types of skills - perceptual, decision-making, and implementation-skills - for assessment (as well as for training) purposes. I suggest that the first two (at least) can be assessed by means that are less cumbersome and costly than those presently used.

Assessing Perceptual Skills. Perceptual skills are skills essential to the recognition and diagnosis of problems. Diagnosis involves detecting a discrepancy between the way things are and the way they should be. It involves competencies of two types: professional values of the teacher indicate the way things ought to be, and perceptual skills indicate the way things are.

The role of perceptual skills in interactive teaching has not been emphasized to the extent that their role in preactive teaching has, although the concept of the teacher who has eyes in the back of her/his head testifies to the popular awareness of its usefulness. Kounin has referred to this as "withitness."[19]

Using Videotapes to Assess Perceptual Skills. Ever since closed circuit television and the helical scanning videotape recorder became generally available there has been interest in the use of videotaped episodes of classroom interaction in teacher evaluation; indeed, the interest in film tests antedates these technological developments.[20]

It seems to me that both the strengths and the weaknesses of this medium arise from the role that perception plays in any use of it we might make. Its primary use is to measure how skillful a student is in "reading" classroom behavior - how much of what goes on in the classroom s/he is aware of. The method is simple: the student is shown an episode and then questioned about what s/he has seen. Let me present an example from our own experimentation with

this type of exercise.

The student taking this kind of a test is provided with an answer sheet just like the one used with a multiple choice test; it has numbered spaces, in each of which are spaces for marking one of a set of alternatives: in this instance, just two, marked true and false, agree and disagree, or perhaps merely yes and no.

The tasks are presented on a television screen rather than in a test booklet. After titles and instructions, the student might see the following episode:

> The camera focuses first on a teacher at a blackboard discussing a diagram of a fish. It then scans a class of teenagers, most of whom are passively attending, although two girls near the rear seem to be whispering or giggling whenever they appear on the screen.

After a few minutes the picture fades and a series of numbered statements appear briefly, one by one, and the student marks "agree", "disagree" or "?" in the corresponding squares on her/his answer sheet.

88. The teacher asked at least one question that called for divergent production.
89. As soon as the teacher noticed the two girls whispering he should have directed a question to one of them. (Whispering girls reappear briefly on the screen.)
90. The girl at the end of the front row was more interested in the lesson than most of the students were.
91. The teacher's explanation of the way fish eggs are fertilized was a procedural one.
92. The drawing on the board showed too much irrelevant detail (the drawing reappears on the screen).
93. The main concept that the teacher was trying to develop was a bit too difficult for most of the pupils.

It should perhaps be mentioned that (like the slide-tape exercise described earlier) this test was designed to measure a number of different competencies simultaneously, so that statements made about the same episode relate to different competencies. Thus, only statements 90 and 93 were intended to measure perceptual skill in this instance. In both cases, the student is expected to have perceived and remembered what happened. Statement 90 could have been accompanied (like statements 89 or 92) by a reappearance of the appropriate part of the videotape. This would have been appropriate if we had wanted to test whether the student was able to recognize the relevant cues when asked to do so; as the item stands, it seems to measure whether he uses the ability without being reminded to do so.

Statements 88, 91, and 92 were designed to measure knowledge of instructional strategies. Correct responses would require the student to know these concepts not merely in the sense of being able to define them, but in the sense that he could recognize instances of their use.

Statement 89 was designed to assess a professional value position, as the word "should" in the statement suggests, referring as it does not to the way something is but the way it ought to be. If the student perceives the whispering as deviating too far from what s/he considers acceptable classroom deportment, s/he will agree with the suggestion that the teacher intervene....